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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09:840,019	04:23/2001	Charles R. Mathews	AMD1:103:HON	4253

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EXAMINER

CRUZ, LOURDES C

ART UNIT PAPER NUMBER

2827

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,019

Applicant(s)

MATHEWS ET AL.

Examiner

Lourdes C. Cruz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,11-17 and 19-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-17 and 19-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on 08 January 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3-6,9,11-15,19-23,26, and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Pomerene et al. (US 6559538).

Pomerene et al. discloses (see figures 2a-2f):

An insulating substrate (material between N+, P+ regions);

A semiconductor structure (the examiner is looking at the figures up-side down) 18 positioned on the insulating substrate; and a Peltier effect heat transfer device (27,31) positioned in (Col. 2, lines 65+; Col. 3, lines 1-4) the insulating substrate and not in the semiconductor structure 18 to transfer heat between the semiconductor structure and the insulating substrate.

Pomerene et al. also discloses:

The semiconductor structure 18 comprises an island 23 surrounded by insulating material 26b

The insulating material comprises part of the insulating substrate (Col 2, line 6; see that "comprises part" does not equate to integration of layers)

The insulating material comprises an insulating film (see col. 2, line 62 wherein '538 describes 26a as a layer or film)

- See that the Peltier device is in the insulating film (Col. 2. lines 65+)
- Semiconductor substrate 32 below the insulating substrate
- The Peltier device comprising plural pn junctions connected in series (see pn junctions from conductors to conductive layers)
- Also see that 21 is a semiconductor substrate (claims 12 and 20)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7,8, 16-18, 24,25,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pomerene et al. in view of Adler et al. (US 6476483).

Pomerene et al. discloses all the above.

However he fails to specifically disclose:

- The Peltier effect device is positioned in the insulating substrate and in the semiconductor substrate
- the insulating substrate comprising oxide
- The semiconductor structure comprising silicon

However, see that Adler et al. specifically teaches:

- The Peltier effect device is positioned in the insulating substrate 38 and in the semiconductor substrate 52
- The insulating substrate 38 comprises oxide
- The semiconductor structure 16 comprises silicon

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Adler et al. to those of Pomerene et al. in order to provide the invention of Pomerene et al. with (a) a thermoelectric cooling mechanism that is close to the semiconductor surface; (b) insulating substrate and (c) semiconductor structure comprising material that are well known among semiconductor artisans in order to provide better insulators and cheaper semiconductor structures.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elle Cruz whose telephone number is 703-306-5691. The examiner can normally be reached on M-F 10-6:30.

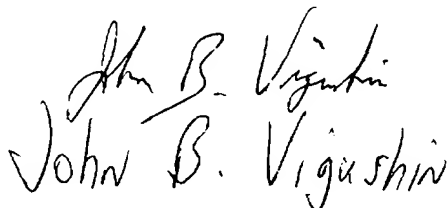
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Elle Cruz

Lourdes C. Cruz
Examiner
Art Unit 2827



John B. Vigushin
Primary Examiner
Art 2827